RESOURCE USAGE MONITOR (RUM)
USER MANUAL

Version 2.0

June 2003

Department of Veterans Affairs
VistA Health Systems Design & Development (HSD&D)
Development and Infrastructure Support (DaIS)

Revision History

Documentation Revisions

The following table displays the revision history for this document. Revisions to the documentation are based on patches and new versions released to the field.

Date	Revision	Description	Author
06/27/03	1.0	Initial Resource Usage Monitor V. 2.0 software documentation creation.	Robert Kamarowski, Bay Pines, FL and Thom Blom, Oakland OIFO
11/17/03	1.1	Updated documentation for format and minor miscellaneous edits (no change pages issued)	Thom Blom, Oakland OIFO

Table i: Documentation revision history

Patch Revisions

For a complete list of patches related to this software, please refer to the Patch Module on FORUM.

Contents

Revision History iii

Acknowledgements ix

Orientation xi

Chapter 1: Introduction 1-1

Chapter 2: RUM Software Overview and Use 2-1

Functional Description 2-1
Data Collection Process 2-1
Statistics and Projections 2-2
Software Management 2-2

Chapter 3: RUM Options 3-1

RUM Manager Menu 3-1
Status of RUM Collection 3-2
Start RUM Collection 3-5
Stop RUM Collection 3-7
RUM Reports 3-7
RUM Data for All Nodes (Graph) 3-9
RUM Data by Date for Single Node (Graph) 3-11
RUM Data for an Option 3-13
Print Hourly Occurrence Distribution 3-17
Package Resource Usage 3-19
RUM Background Driver 3-22

Glossary Glossary-1

Index Index-1

Figures and Tables

Table i: Documentation revision history iii

Table ii: Documentation symbol descriptions xi

Figure 2-1: Sample MailMan message showing summary workload data at a site 2-3

Figure 3-1: Accessing the RUM Manager Menu 3-1

Figure 3-2: RUM Manager Menu options 3-1

Figure 3-3: Running the Status of RUM Collection option when the Background Driver job has *not* been scheduled 3-3

Figure 3-4: Sample output from the Status of RUM Collection option *before* starting the RUM collection 3-4

Figure 3-5: Sample output from the Status of RUM Collection option *before* starting the RUM collection (continued) 3-4

Figure 3-6: Running the Start RUM Collection option 3-5

Figure 3-7: Sample output from the Status of RUM Collection option *after* starting the RUM collection 3-6

Figure 3-8: Sample output from the Status of RUM Collection option *after* running the RUM collection for several weeks 3-6

Figure 3-9: Running the Stop RUM Collection option 3-7

Figure 3-10: Accessing the RUM Reports menu options 3-7

Figure 3-11: RUM Reports menu options 3-8

Table 3-1: RUM report system workload data elements 3-8

Figure 3-12: Running the RUM Data for All Nodes (Graph) report option—M Commands data element 3-9

Figure 3-13: Sample output from the RUM Data for All Nodes (Graph) report option—M Commands data element 3-10

Figure 3-14: Running the RUM Data by Date for Single Node (Graph) report option—M Commands data element 3-12

Figure 3-15: Sample output from the RUM Data by Date for Single Node (Graph) report option—M Commands data element 3-12

Figure 3-16: Running the RUM Data for an Option report option—Option workload 3-13

Figure 3-17: Sample report output from the RUM Data for an Option report option—Option workload... 3-14

Figure 3-18: Running the RUM Data for an Option report option—Protocol workload 3-14

Figure 3-19: Sample report output from the RUM Data for an Option report option—Protocol workload 3-15

Figure 3-20: Running the RUM Data for an Option report option—RPC workload 3-15

Figure 3-21: Sample report output from the RUM Data for an Option report option—RPC workload ..3-16

Figure 3-22: Running the Print Hourly Occurrence Distribution report option—Option/Task.....3-17

Figure 3-23: Sample report output from the Print Hourly Occurrence Distribution report option—Option/Task workload 3-18

Figure 3-24: Running the Package Resource Usage report option 3-19

Figure 3-25: Sample report output from the Package Resource Usage option 3-21

Figure 3-26: Running TaskMan's Schedule/Unschedule Options option to set up the RUM Background Driver 3-23

Figure 3-27: Sample ScreenMan form from TaskMan's Schedule/Unschedule Options option *before* scheduling the RUM Background Driver 3-24

Figure 3-28: Sample ScreenMan form from TaskMan's Schedule/Unschedule Options option *after* scheduling the RUM Background Driver 3-24

Acknowledgements

Capacity Planning (CP) Services' Resource Usage Monitor Project Team consists of the following Development and Infrastructure Service (DaIS) personnel:

- DaIS Program Director—Catherine Pfeil
- DaIS Resource Project Manager—John Kupecki
- Developers—Robert Kamarowski and Kornel Krechoweckyj
- Technical Writer—Thom Blom

Capacity Planning (CP) Services' RUM Project Team would like to thank the following sites/organizations/personnel for their assistance in reviewing and/or testing the RUM V. 2.0 software and documentation (names within teams are listed alphabetically):

- Albany Office of Information Field Office (OIFO)—Rick Esposito
- Connecticut HCS
- Heartland West VISN 15—Steve Crawford, Terry O'Bryan, and George Parry
- North Florida/South Georgia HCS—Vince Brinker
- Upstate New York HCS—Bob Wicks
- West River Junction, VT VAMC—Dennis Follensbee

Orientation

How to Use this Manual

Throughout this manual, advice and instructions are offered regarding the use of Resource Usage Monitor (RUM) software and the functionality it provides for Veterans Health Information Systems and Technology Architecture (VistA) software products.

This manual uses several methods to highlight different aspects of the material:

- Various symbols are used throughout the documentation to alert the reader to special information. The following table gives a description of each of these symbols:

Symbol	Description
	Used to inform the reader of general information including references to additional reading material.
	Used to caution the reader to take special notice of critical information.

Table ii: Documentation symbol descriptions

- Descriptive text is presented in a proportional font (as represented by this font).
- HL7 messages, "snapshots" of computer online displays (i.e., roll-and-scroll screen captures/dialogues) and computer source code, if any, are shown in a *non*-proportional font and enclosed within a box.
  - User's responses to online prompts will be boldface type. The following example is a screen capture of computer dialogue, and indicates that the user should enter two question marks:

```
Select Primary Menu option: ??
```

  - The "**<Enter>**" found within these snapshots indicate that the user should press the Enter key on their keyboard. Other special keys are represented within < > angle brackets. For example, pressing the PF1 key can be represented as pressing **<PF1>**.
  - Author's comments, if any, are displayed in italics or as "callout" boxes.

Callout boxes refer to labels or descriptions usually enclosed within a box, which point to specific areas of a displayed image.

- All uppercase is reserved for the representation of M code, variable names, or the formal name of options, field and file names, and security keys (e.g., the XUPROGMODE key).

How to Obtain Technical Information Online

Exported file, routine, and global documentation can be generated through the use of Kernel, MailMan, and VA FileMan utilities.

Methods of obtaining specific technical information online will be indicated where applicable under the appropriate topic. Please refer to the *Resource Usage Monitor (RUM) Technical Manual* for further information.

Help at Prompts

VistA software provides online help and commonly used system default prompts. Users are encouraged to enter question marks at any response prompt. At the end of the help display, you are immediately returned to the point from which you started. This is an easy way to learn about any aspect of VistA software.

To retrieve online documentation in the form of Help in any VistA character-based product:

- Enter a single question mark ("**?**") at a field/prompt to obtain a brief description. If a field is a pointer, entering one question mark ("**?**") displays the HELP PROMPT field contents and a list of choices, if the list is short. If the list is long, the user will be asked if the entire list should be displayed. A YES response will invoke the display. The display can be given a starting point by prefacing the starting point with an up-arrow ("^") as a response. For example, **^M** would start an alphabetic listing at the letter M instead of the letter A while **^127** would start any listing at the 127th entry.
- Enter two question marks ("**??**") at a field/prompt for a more detailed description. Also, if a field is a pointer, entering two question marks displays the HELP PROMPT field contents and the list of choices.
- Enter three question marks ("**???**") at a field/prompt to invoke any additional Help text stored in Help Frames.

Obtaining Data Dictionary Listings

Technical information about files and the fields in files is stored in data dictionaries. You can use the List File Attributes option on the Data Dictionary Utilities submenu in VA FileMan to print formatted data dictionaries.

For details about obtaining data dictionaries and about the formats available, please refer to the "List File Attributes" chapter in the "File Management" section of the *VA FileMan Advanced User Manual*.

Assumptions About the Reader

This manual is written with the assumption that the reader is familiar with the following:

- VistA computing environment
- VA FileMan data structures and terminology
- Microsoft Windows
- M programming language

It provides an overall explanation of configuring the Resource Usage Monitor (RUM) interface and the changes contained in Resource Usage Monitor (RUM) software, version 2.0. However, no attempt is made to explain how the overall VistA programming system is integrated and maintained. Such methods and procedures are documented elsewhere. We suggest you look at the various VA home pages on the World Wide Web (WWW) for a general orientation to VistA. For example, go to the Veterans Health Administration (VHA) Office of Information (OI) Health Systems Design & Development (HSD&D) Home Page at the following Web address:

http://vista.med.va.gov/

Reference Materials

Readers who wish to learn more about the Resource Usage Monitor (RUM) software should consult the following:

- *Resource Usage Monitor (RUM) Installation Guide*
- *Resource Usage Monitor (RUM) Technical Manual*
- Capacity Planning (CP) Services' Home Page (for more information on Capacity Planning) at the following Web address:

  http://vista.med.va.gov/capman/default.htm

  This site contains additional information and documentation.

VistA documentation is made available online in Microsoft Word format and Adobe Acrobat Portable Document Format (PDF). The PDF documents *must* be read using the Adobe Acrobat Reader (i.e., ACROREAD.EXE), which is freely distributed by Adobe Systems Incorporated at the following Web address:

http://www.adobe.com/

VistA documentation can be downloaded from the National VistA Support (NVS) anonymous directories or from the Health Systems Design & Development (HSD&D) VistA Documentation Library (VDL) Web site:

http://www.va.gov/vdl/

For more information on the use of the Adobe Acrobat Reader, please refer to the *Adobe Acrobat Quick Guide* at the following Web address:

http://vista.med.va.gov/iss/acrobat/index.asp

DISCLAIMER: The appearance of any external hyperlink references in this document does not constitute endorsement by the Department of Veterans Affairs (VA) of this Web site or the information, products, or services contained therein. The VA does not exercise any editorial control over the information you may find at these locations. Such links are provided and are consistent with the stated purpose of this VA Intranet Service.

Chapter 1: Introduction

The Resource Usage Monitor (RUM) software is intended for use by Information Resource Management (IRM) staff responsible for the capacity planning functions at their site. The RUM software allows a site to review system and Veterans Health Information Systems and Technology Architecture (VistA) option workload information.

The RUM software is strongly dependent on the site to schedule and run the background task on a regular basis. Menus and options are provided locally at the site to allow IRM staff to accomplish and monitor this task.

The collection task obtains system and VistA option information from the site and automatically transfers this data via network mail (i.e., VistA MailMan) to the Capacity Planning National Database.

The Veterans Health Administration (VHA) developed the RUM software in order to obtain more accurate information regarding the current and future system and VistA option workload at VA sites (e.g., VA Medical Centers [VAMCs]).

The purpose of this manual is to provide information about the Resource Usage Monitor (RUM) software. This manual defines the use of this software as a resource to IRM staff responsible for capacity planning functions at the site. It also highlights the use of the options that are available at the site.

Chapter 2: RUM Software Overview and Use

Functional Description

The Resource Usage Monitor (RUM) software application provides fully automated support tools developed by Capacity Planning Services. It entails the daily capture of system and VistA option workload information from participating sites. This workload data is then summarized on a weekly basis and is automatically transferred, via network mail (i.e., VistA MailMan) to the Capacity Planning National Database. The site also receives a summary of the system workload data in the form of an electronic turn-around message.

For sample site e-mail message, please refer to Figure 2-1 in this chapter.

The IRM staff utilizes the options that are available at the site to manage the RUM software. IRM staff responsible for capacity planning tasks at the site can use these options to review system workload trends. Additionally, the IRM staff can review specific workload information for any given VistA option.

For more information on the RUM options, please refer to Chapter 3 "RUM Options," in this manual.

The current version of the software is compatible with all current operating system platforms at VA sites and has minimal impact on IRM support staff.

Data Collection Process

Installing the RUM software creates the collection process mechanism and other necessary components of the software. The fully automated data collection mechanism entails capturing all system and VistA option workload specifics at the site into a temporary ^KMPTMP("KMPR") collection global. The collection mechanism is continuously monitoring each process on the system while trapping system and VistA option workload data.

On a nightly basis, the RUM Background Driver option [KMPR BACKGROUND DRIVER] moves the data within the ^KMPTMP("KMPR") collection global to the RESOURCE USAGE MONITOR file (#8971.1) and the temporary data within the ^KMPTMP("KMPR") global is purged.

For more information on the RUM Background Driver option [KMPR BACKGROUND DRIVER], please refer to the "RUM Background Driver" topic in Chapter 3 "RUM Options," in this manual.

Statistics and Projections

Every Sunday night, the RUM Background Driver option [KMPR BACKGROUND DRIVER] monitors the RESOURCE USAGE MONITOR file to ensure that only a maximum of three weeks worth of data is maintained at the site.

Also, each Sunday night, the RUM Background Driver option automatically compresses the information contained within the RESOURCE USAGE MONITOR file (#8971.1) into weekly statistics. These weekly statistics are converted into an electronic mail message that is automatically transferred via network mail (i.e., VistA MailMan) and merged into a Capacity Planning National Database where this data is used for evaluation purposes.

The data is also available on Capacity Planning (CP) Services' Web site at the following Web addresses:

- Statistics—Provides statistics for each listed site:

  http://vista.med.va.gov/capman/Statistics/Default.htm

- Projections—Provides data trends for each listed site:

  http://vista.med.va.gov/capman/TrendSetter/Default.htm

Software Management

The Resource Usage Monitor (RUM) software is managed by IRM staff through the RUM Manager Menu [KMPR RUM MANAGER MENU], which is located under the Capacity Management menu [XTCM MAIN]. The XTCM MAIN menu is found under the Eve menu and should be assigned to IRM staff member(s) who support(s) this software and other capacity management tasks.

This software utilizes the KMP-CAPMAN mail group, which can be edited with the Capacity Management Mail Group Edit option [KMP MAIL GROUP EDIT] option, which is located under the Capacity Management menu [XTCM MAIN]

For more information on RUM software management and maintenance, please refer to the *Resource Usage Monitor (RUM) Technical Manual*.

In addition to the summary workload data automatically transferred to the Capacity Planning National Database on a weekly basis, the site also receives a summary of the system workload data in the form of an electronic turn-around message, as shown below:

```
Subj: HINES.MED.VA.GOV (06-01-2003) RUM Report  [#7354404] 06/10/03@10:23
53 lines
From: RUM NATIONAL DATABASE SERVER  In 'IN' basket.   Page 1  *New*
------------------------------------------------------------------------------
                          * RESOURCE USAGE MONITOR *
                         CPU Workload Activity Report
                       Monday - Friday (8 a.m. - 5 p.m.)

                                 M Commands/sec

Node Name           05-11-2003     05-18-2003     05-25-2003     06-01-2003
---------           ----------     ----------     ----------     ----------
 578A01                 95,911        111,802        117,809        119,509
 578A02                 83,865        113,740        111,005        117,521
 578A03                101,470        130,290        147,895        180,654
 578A04                 21,154          7,296          3,904          4,292
 578A05                 23,580         12,156         22,511          5,754
 578A06                 28,266         25,384          9,821         11,323
 578A07                 14,006         12,127          6,963          8,879
                     ----------     ----------     ----------     ----------
                        368,252        412,795        419,908        447,932

 M Commands - A system workload data element that gives the number of
              distinct commands that have been executed while executing
              M routine code.

_______________________________________________________________________________

                          Disk Workload Activity Report
                       Monday - Friday (8 a.m. - 5 p.m.)

                                 Glo References/sec

Node Name           05-11-2003     05-18-2003     05-25-2003     06-01-2003
---------           ----------     ----------     ----------     ----------
 578A01                 14,745         17,537         18,458         18,343
 578A02                 12,872         17,598         16,999         18,073
 578A03                 13,925         14,735         18,398         24,365
 578A04                  2,615            788            251          2,520
 578A05                  1,434          1,634          2,721          2,677
 578A06                  3,960          3,594          1,145          3,465
 578A07                  1,666          1,397            670          3,034
                     ----------     ----------     ----------     ----------
                         51,217         57,283         58,642         72,477

 Glo References - A system workload data element that gives the number of
                  times that a global variable name has been called because
                  of M routine code execution.

                                     *****

    Additional RUM Reports are available on the Capacity Planning
    Web Page at http://vista.med.va.gov/capman/default.htm  Click on
    the 'Statistics' and 'Projections' left-hand links.
```

Figure 2-1: Sample MailMan message showing summary workload data at a site

Chapter 3: RUM Options

This chapter discusses the Resource Usage Monitor (RUM) options.

RUM Manager Menu [KMPR RUM MANAGER MENU]

The RUM Manager Menu [KMPR RUM MANAGER MENU] is located under the Capacity Management menu [XTCM MAIN], as shown below:

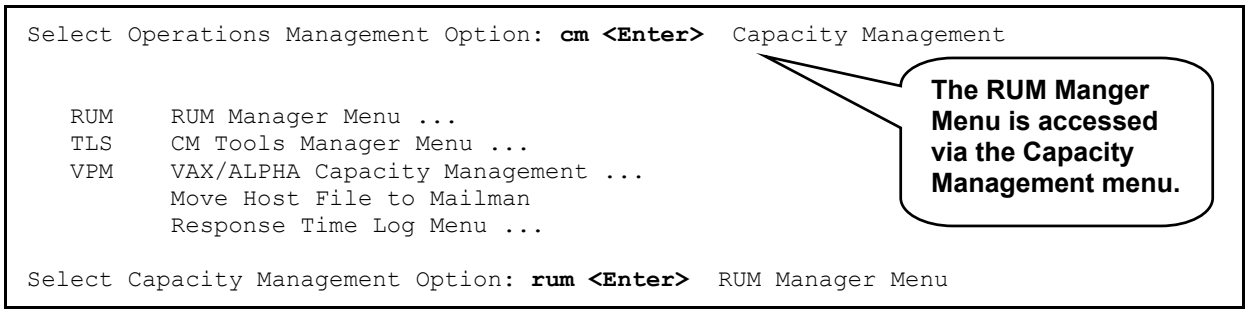

Figure 3-1: Accessing the RUM Manager Menu

The RUM Manager Menu contains the following options:

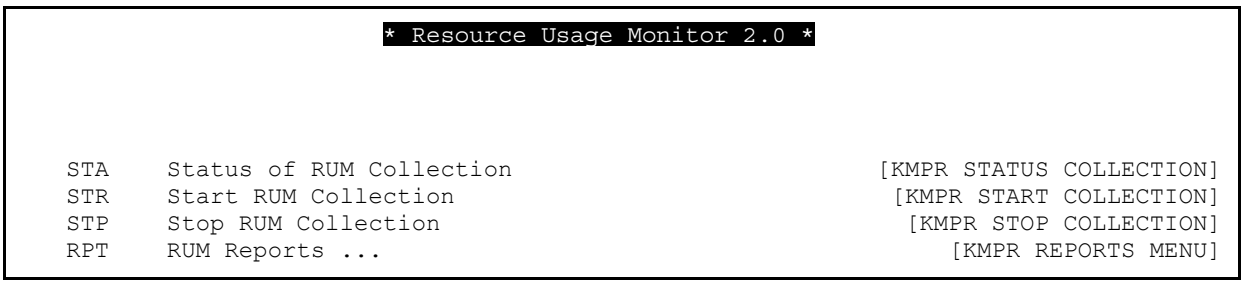

Figure 3-2: RUM Manager Menu options

Each of these options is discussed in greater detail in the topics that follow.

Status of RUM Collection (Synonym: **STA**)	**[KMPR STATUS COLLECTION]**

The Status of RUM Collection option [KMPR STATUS COLLECTION] displays the current status of the RUM collection routines. This option identifies the following information (see Figure 3-4):

- **STATUS—**Indicates whether or not the RUM software is currently running and collecting data.
- **RUM BACKGROUND DRIVER—**Indicates the option name of the RUM Background Driver [KMPR BACKGROUND DRIVER].
- **QUEUED TO RUN AT—**Indicates the date that the RUM Background Driver option [KMPR BACKGROUND DRIVER] is scheduled to first run at the site *and* the regularly scheduled time when the RUM Background Driver option should run at a site. The job will run at this scheduled time depending on the Rescheduling Frequency indicated.

  The installation of the RUM software creates and sets this field automatically. It does the same thing as TaskMan's Schedule/Unschedule Option, which saves the installer the job of having to set up the Background Driver job later.

- **RESCHEDULING FREQUENCY—**Indicates the frequency at which the RUM Background Driver option [KMPR BACKGROUND DRIVER] is run.

  Capacity Planning (CP) Services *strongly* recommends that the RUM Background Driver option [KMPR BACKGROUND DRIVER] be scheduled to run every day at 1 a.m., because this background driver is the main mechanism by which the t^KMPTMP("KMPR") temporary collection global is purged nightly and the RESOURCE USAGE MONITOR file (#8971.1) is trimmed (records deleted) to contain a maximum of 21 days of data every Sunday night.

  Modification of the frequency and time may have adverse effects on the size of the ^KMPTMP("KMPR") temporary collection global and on the number of entries within the RESOURCE USAGE MONITOR file.

- **TASK ID—**This is the TaskMan task ID scheduled to run the Background Driver job.
- **QUEUED BY—**This is the person who schedules the Background Driver job to run via TaskMan.

  The installation of the RUM software creates and sets this field automatically. It sets it to the name of the person doing the installation of the RUM V. 2.0 software.

- **DAILY BACKGROUND LAST START—**Indicates the most recent date and time at which the RUM Background Driver option [KMPR BACKGROUND DRIVER] last daily run was started.
- **DAILY BACKGROUND LAST STOP—**Indicates the most recent date and time at which the RUM Background Driver option [KMPR BACKGROUND DRIVER] last daily run was stopped.
- **DAILY BACKGROUND TOTAL TIME—**Indicates the total time at which the RUM Background Driver option [KMPR BACKGROUND DRIVER] took in its most recent daily run.
- **WEEKLY BACKGROUND LAST START—**Indicates the most recent date and time at which the RUM Background Driver option [KMPR BACKGROUND DRIVER] last weekly run was started.

- **WEEKLY BACKGROUND LAST STOP—**Indicates the most recent date and time at which the RUM Background Driver option [KMPR BACKGROUND DRIVER] last weekly run was stopped.
- **WEEKLY BACKGROUND TOTAL TIME—**Indicates the total time at which the RUM Background Driver option [KMPR BACKGROUND DRIVER] took in its most recent weekly run.
- **TEMPORARY COLLECTION GLOBAL—**Indicates if the ^KMPTMP("KMPR") temporary collection global is present or not on the system. When RUM is started the ^KMPTMP global will be populated with data.

The Status of RUM Collection option [KMPR STATUS COLLECTION] checks to ensure that the RUM Background Driver option [KMPR BACKGROUND DRIVER] has been scheduled to run every night (see Figure 3-4).

If the Status of RUM Collection option determines that the background task has *not* been scheduled properly, the Status of RUM Collection option will ask to queue the background task to run every night at 1 a.m., as shown below:

```
Select Capacity Management Option: rum <Enter>  RUM Manager Menu

                        * Resource Usage Monitor 2.0 *



   STA    Status of RUM Collection
   STR    Start RUM Collection
   STP    Stop RUM Collection
   RPT    RUM Reports ...

Select RUM Manager Menu Option: sta <Enter>  Status of RUM Collection
 RUM is on but the option 'KMPR BACKGROUND DRIVER' is not scheduled to run

Do you want me to queue this option to run every night at 1 a.m.? YES// <Enter>
```

Figure 3-3: Running the Status of RUM Collection option when the Background Driver job has *not* been scheduled

Selecting "**YES**" after the "Do you want me to queue this option to run every night at 1 a.m.? YES//" prompt will cause the KMPR BACKGROUND DRIVER option to be entered into the OPTION SCHEDULING file (#19.2) with a QUEUED TO RUN AT WHAT TIME field entry of "**Tomorrow @ 1 a.m.**" and a RESCHEDULING FREQUENCY field entry of "**1D**" (i.e., every day), see Figure 3-4.

This option has been enhanced with the RUM V. 2.0 software.

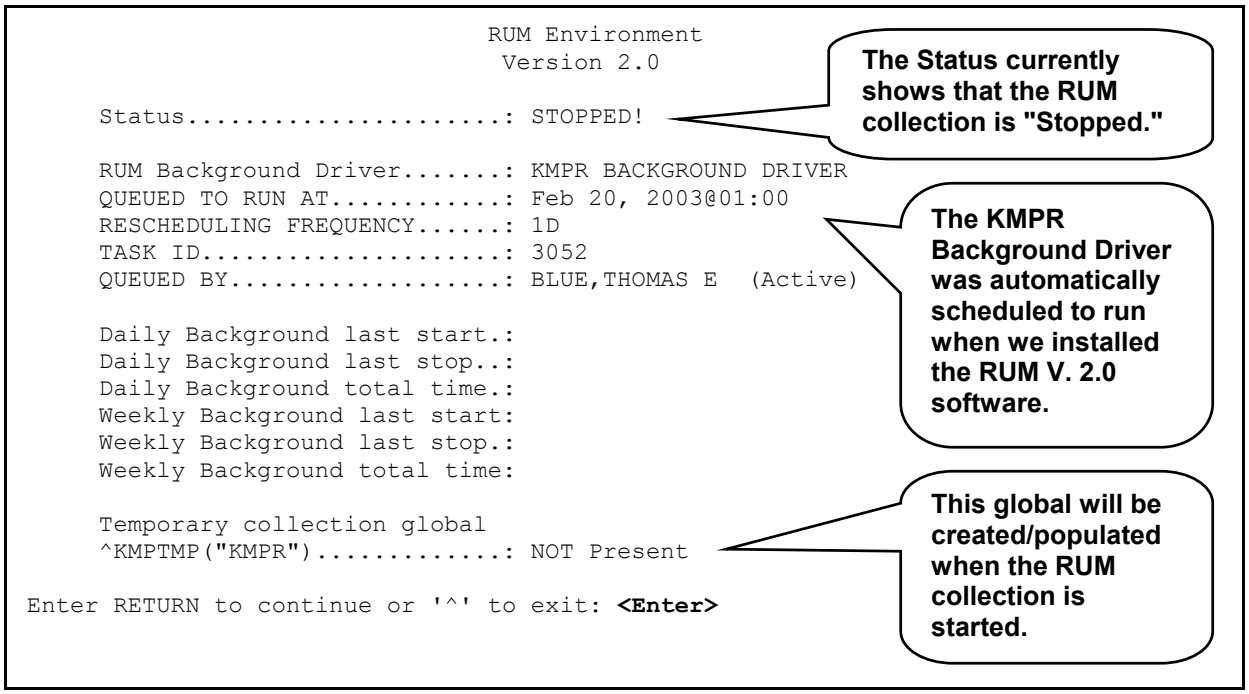

Figure 3-4: Sample output from the Status of RUM Collection option *before* starting the RUM collection

After pressing the Enter key the following report is displayed:

```
                              RUM Environment
                               Version 2.0


                                                 # of    Oldest    Recent
     File                                      Entries    Date      Date
     ------------------------------------      -------   ------    ------
     8971.1 - RESOURCE USAGE MONITOR                 0


     RUM routines.....: No Problems
```

Figure 3-5: Sample output from the Status of RUM Collection option *before* starting the RUM collection (continued)

Start RUM Collection (Synonym: **STR**)	**[KMPS START COLLECTION]**

The Start RUM Collection option [KMPS START COLLECTION] initiates the Resource Usage Monitor (RUM) collection routines to begin collecting system and VistA option workload data.

You should first invoke the Status of RUM Collection option [KMPR STATUS COLLECTION] to ensure that the RUM Background Driver option [KMPR BACKGROUND DRIVER] is scheduled to run every day at 1 a.m.

For more information on the Status of RUM Collection option, please refer to the "Status of RUM Collection" topic in this chapter.

If the RUM Background Driver option [KMPR BACKGROUND DRIVER] is *not* shown as being scheduled to run in the future, use TaskMan's Schedule/Unschedule Options option [XUTM SCHEDULE], located under the Taskman Management menu [XUTM MGR] to schedule the KMPR BACKGROUND DRIVER option, to run every day at 1 a.m.

Capacity Planning (CP) Services *strongly* recommends that the RUM Background Driver option [KMPR BACKGROUND DRIVER] be scheduled to run every day at 1 a.m., because this background driver is the main mechanism by which the ^KMPTMP("KMPR") temporary collection global is purged nightly and the RESOURCE USAGE MONITOR file (#8971.1) is trimmed (records deleted) to contain a maximum of 21 days of data every Sunday night.

Modification of the frequency and time may have adverse effects on the size of the ^KMPTMP("KMPR") temporary collection global and on the number of entries within the RESOURCE USAGE MONITOR file.

To start the RUM collection, do the following:

```
Select RUM Manager Menu Option: str <Enter>  Start RUM Collection

Do you want to start Resource Usage Monitor collection? YES// ?

Answer YES to start collecting Resource Usage Monitor data.

Do you want to start Resource Usage Monitor collection? YES// <Enter>

          Resource Usage Monitor collection is started.
```

Figure 3-6: Running the Start RUM Collection option

When we do another status check after starting the RUM collection, we see the following:

```
                              RUM Environment
                               Version 2.0

     Status.....................: Running

     RUM Background Driver.......: KMPR BACKGROUND DRIVER
     QUEUED TO RUN AT............: Feb 06, 2003@01:00
     RESCHEDULING FREQUENCY......: 1D
     TASK ID.....................: 3052
     QUEUED BY...................: BLUE,THOMAS E  (Active)

     Daily Background last start.:
     Daily Background last stop..:
     Daily Background total time.:
     Weekly Background last start:
     Weekly Background last stop.:
     Weekly Background total time:

     Temporary collection global
     ^KMPTMP("KMPR").............: NOT Present

Enter RETURN to continue or '^' to exit: <Enter>
```

The Status shows that the RUM collection is now "Running" and collecting data.

Figure 3-7: Sample output from the Status of RUM Collection option *after* starting the RUM collection

As soon as users begin accessing menu options the ^KMPTMP("KMPR") global will be present. The Daily Background and Weekly Background data will be displayed as appropriate, as shown below:

```
                              RUM Environment
                               Version 2.0

     Status.....................: Running

     RUM Background Driver.......: KMPR BACKGROUND DRIVER
     QUEUED TO RUN AT............: Feb 20, 2003@01:00
     RESCHEDULING FREQUENCY......: 1D
     TASK ID.....................: 3052
     QUEUED BY...................: BLUE,THOMAS E  (Active)

     Daily Background last start.: 2/19/03@01:00
     Daily Background last stop..: 2/19/03@01:00
     Daily Background total time.:
     Weekly Background last start: 2/16/03@01:00:01
     Weekly Background last stop.: 2/16/03@01:00:01
     Weekly Background total time:

     Temporary collection global
     ^KMPTMP("KMPR").............: Present
```

This global has now been created/populated while the RUM collection was running.

Figure 3-8: Sample output from the Status of RUM Collection option *after* running the RUM collection for several weeks

Stop RUM Collection (Synonym: **STP**)	**[KMPR STOP COLLECTION]**

The Stop RUM Collection option [KMPR STOP COLLECTION] stops the Resource Usage Monitor (RUM) collection routines from collecting data.

This option does *not* stop the RUM Background Driver [KMPR BACKGROUND DRIVER].

```
Select RUM Manager Menu Option: stp <Enter>  Stop RUM Collection

Do you want to stop Resource Usage Monitor collection? YES// ?

Answer YES to stop collecting Resource Usage Monitor data.

Do you want to stop Resource Usage Monitor collection? YES// <Enter>

          Resource Usage Monitor collection is stopped.
```

Figure 3-9: Running the Stop RUM Collection option

RUM Reports (Synonym: **RPT**)	**[KMPR REPORTS MENU]**

The RUM Reports menu option [KMPR REPORTS MENU] is available on the RUM Manager Menu, as shown below:

```
Select RUM Manager Menu Option: rpt <Enter>  RUM Reports


   GAN    RUM Data for All Nodes (Graph)
   GSN    RUM Data by Date for Single Node (Graph)
   PDO    RUM Data for an Option
   PHO    Print Hourly Occurrence Distribution
   PRU    Package Resource Usage


Select RUM Reports Option:
```

Figure 3-10: Accessing the RUM Reports menu options

The RUM Reports menu [KMPR REPORTS MENU] contains various report options that generate report information from the system and VistA option workload statistics accumulated within the RESOURCE USAGE MONITOR file (#8971.1).

The RUM Reports menu contains the following options:

```
GAN  RUM Data for All Nodes (Graph)                          [KMPR GRAPH ALL NODES]
GSN  RUM Data by Date for Single Node (Graph)       [KMPR GRAPH HOURLY SINGLE NODE]
PDO  RUM Data for an Option                                 [KMPR PRINT OPTION DATA]
PHO  Print Hourly Occurrence Distribution            [KMPR PRINT HOURLY OCCURRENCE]
PRU  Package Resource Usage                               [KMPR PRINT NODE PERCENT]
```

Figure 3-11: RUM Reports menu options

Each of these options is discussed in greater detail in the topics that follow.

All of the report options except KMPR PRINT HOURLY OCCURRENCE provide information on the following workload data elements:

Data Element	Description
CPU Time	The amount of time that the processor has spent executing M routine code.
Elapsed Time	The amount of actual time that has passed while executing M routine code.
M Commands	The number of distinct commands that have been executed while executing M routine code.
GLO References	The number of times that a global variable name has been called because of M routine code execution.
DIO References	The number of times that a disk access has been requested because of M routine code execution.
BIO References	The number of times that a buffered access has been called because of M routine code execution. Terminals and printers are normally considered to be a buffered device within the M environment.
Page Faults	The number of times that a job had to use non-physical (i.e., paged) memory.
Occurrences	A total measure of the number of VistA option executions.

Table 3-1: RUM report system workload data elements

For more information on the statistics and projections (trends) based on data obtained from these report options, please refer to the "Statistics and Projections" topic in Chapter 2, "RUM Software Overview and Use," in this manual.

Generating the reports can sometimes take a while. Users may wish to queue the printouts, when feasible.

RUM Data for All Nodes (Graph) (Synonym: **GAN**)	**[KMPR REPORTS MENU]**

The RUM Data for All Nodes (Graph) report option [KMPR GRAPH ALL NODES] displays a bar graph and totals of the selected system workload data element for *all* system nodes within a given date range.

For more information on the system workload data elements, please refer to Table 3-1 in this chapter.

M Commands Workload

The following example shows the prompts and user responses for the RUM Data for All Nodes (Graph) report option for the M Commands data element:

```
Select RUM Reports Option: gan <Enter>  RUM Data for All Nodes (Graph)

                          Data for All Nodes (Graph)

         This option displays data in a graphical format.  Please make
         note that this output is intended for comparison/trends only,
         and should not be used for detailed analysis.

     Select one of the following:

          1          CPU Time
          2          Elapsed Time
          3          M Commands
          4          GLO References
          5          DIO References
          6          BIO References
          7          Page Faults
          8          Occurrences

Enter Key Data Element for Searching RUM Data: 3 <Enter>  M Commands

Start with Date: 11/8/98// <Enter>  (NOV 08, 1998)
  End with Date: 11/24/98// <Enter>  (NOV 24, 1998)

   compiling data for: 11/8/1998.....11/9/1998...........11/10/1998.........
                       11/11/1998.....11/12/1998...........11/13/1998.........
```

Choose to report on any of these eight data elements for *all* system nodes.

Here we've chosen to report on the M Commands data element.

Here we entered the date range for the report/graph.

Figure 3-12: Running the RUM Data for All Nodes (Graph) report option—M Commands data element

The following is a sample report/graph generated for the M Commands data element for *all* system nodes at a site:

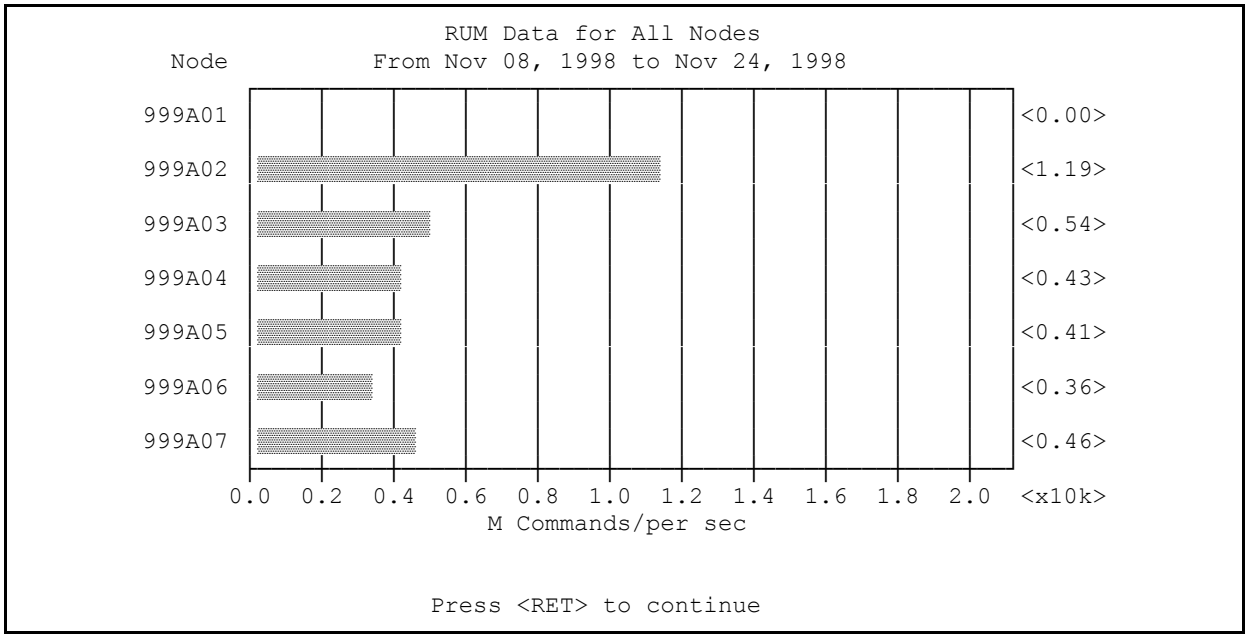

Figure 3-13: Sample output from the RUM Data for All Nodes (Graph) report option—M Commands data element

The bar graph in this example gives a total amount of the M Commands per second for each system node from November 8, 1998 to November 24, 1998. For example, we see that there were 1.19 x 10K M commands per second for system node 999A02. That equates to 11.9K or 12,185.6 bytes per second during that time period.

The granularity of the graphical output is representative of the actual workload amounts.

RUM Data by Date for Single Node (Graph) (Synonym: **GSN**)	**[KMPR GRAPH HOURLY SINGLE NODE]**

The RUM Data by Date for Single Node (Graph) report option [KMPR GRAPH HOURLY SINGLE NODE] displays a bar graph and totals of the selected system workload data element for a *single* node for each day within a given date range.

For more information on the system workload data elements, please refer to Table 3-1 in this chapter.

M Commands Workload

The following example shows the prompts and user responses for the RUM Data by Date for Single Node (Graph) report option for the M Commands data element:

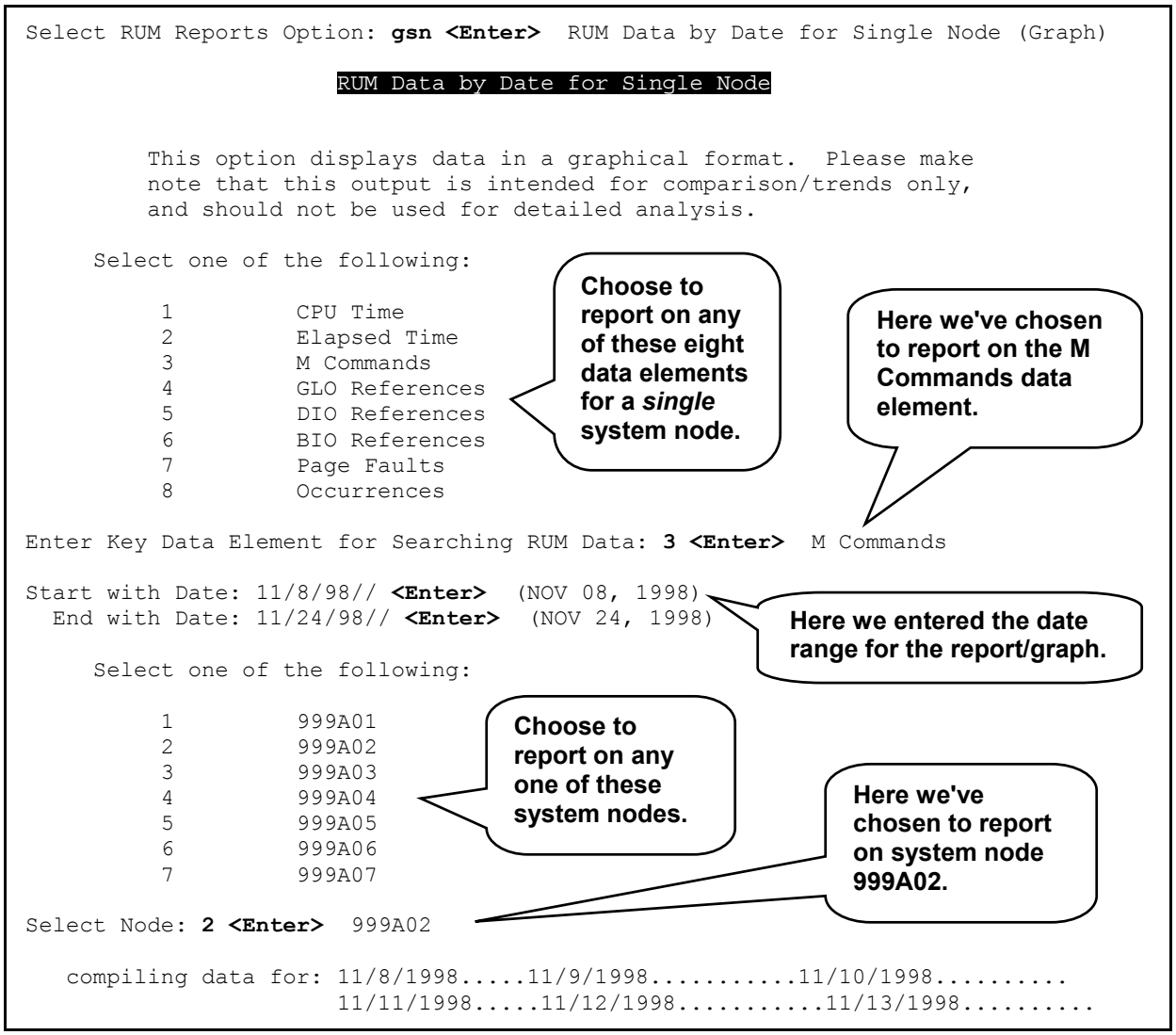

Figure 3-14: Running the RUM Data by Date for Single Node (Graph) report option—M Commands data element

The following is a sample report/graph generated for the M Commands data element for a *single* system node at a site:

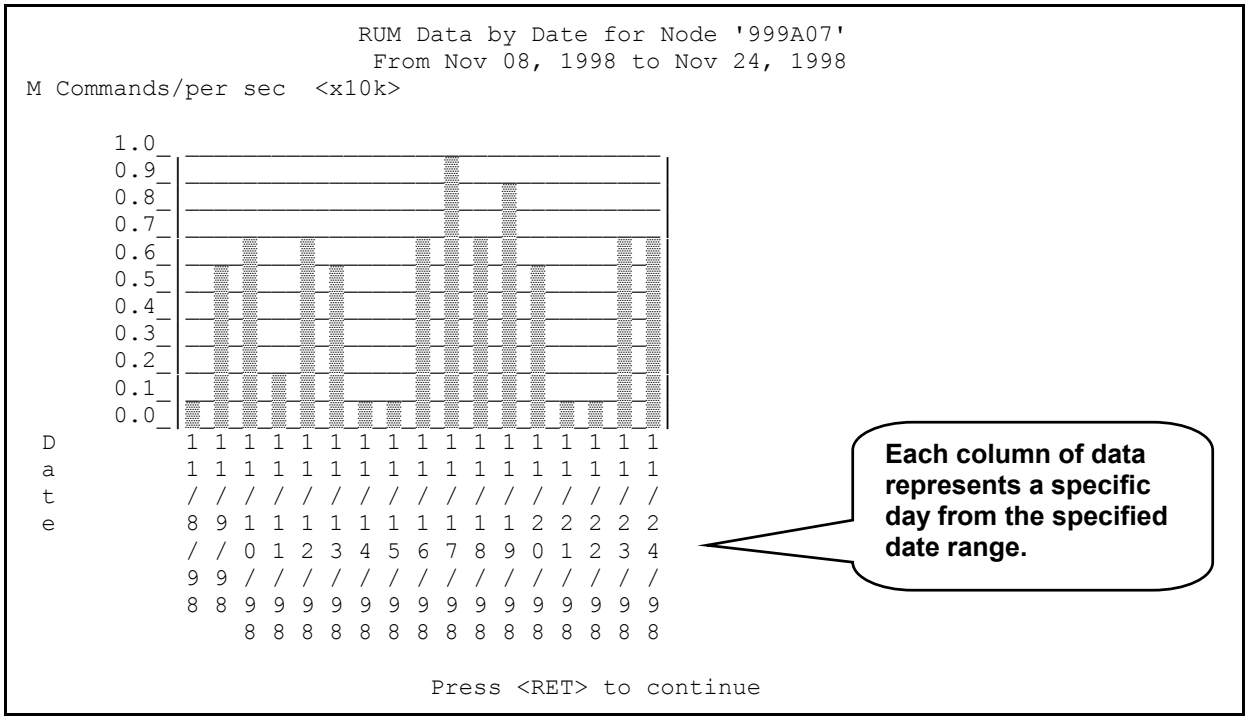

Figure 3-15: Sample output from the RUM Data by Date for Single Node (Graph) report option—M Commands data element

The bar graph in this example gives a total amount of the M Commands per second for the 999A07 system node for each day from November 8, 1998 to November 24, 1998. For example, we see that there were 1.0 x 10K M commands per second for system node 999A07 on November 17, 1998. That equates to 10K or 10,240 bytes per second on that day.

The granularity of the graphical output is representative of the actual workload amounts.

RUM Data for an Option (Synonym: **PDO**)	**[KMPR PRINT OPTION DATA]**

The RUM Data for an Option report option [KMPR PRINT OPTION DATA] lists all the system workload data element statistics within a given date range for any of the following:

- Option
- Protocol
- Remote Procedure Call (RPC)

For more information on the system workload data elements, please refer to Table 3-1 in this chapter.

Option Workload

The Option workload report output from the RUM Data for an Option report option lists the occurrence of the data element statistics for a specified option, as well as the total amounts within a given date range.

The following example shows the prompts and user responses for the RUM Data for an Option report option for the data element statistics for the DG REGISTER PATIENT option at a site:

```
Select RUM Reports Option: PDO <Enter>  RUM Data for an Option

                          RUM Data by Option/Protocol/RPC

     Select one of the following:

          1         Option
          2         Protocol
          3         RPC

Enter response: 1 <Enter>  Option

Select Option: ?
 Answer with OPTION NAME, or ROUTINE
 Do you want the entire 16078-Entry OPTION List? N <Enter>  (No)
Select Option: DG REGISTER PATIENT  <Enter>       Register a Patient
run routine     REGISTRATION

Start with Date: 1/26/03// <Enter>  (JAN 26, 2003)
  End with Date: 2/11/03// <Enter>  (FEB 11, 2003)

Device: HOME//  <Enter>  TELNET DEVICE

   ...compiling data...
```

Choose to report on the data element statistics for any of these three workload items.

Here we've chosen to report on the data element statistics for the DG REGISTER PATIENT option at a site.

Here we entered the date range for the report.

Figure 3-16: Running the RUM Data for an Option report option—Option workload

The following is a sample report of the Option workload data element statistics for the DG REGISTER PATIENT option at a site:

```
                    RUM Data for Option: DG REGISTER PATIENT
                        N. FLORIDA/S. GEORGIA HCS (573)
                       For Jan 26, 2003 to Feb 11, 2003

                             per Occurrence                Totals

CPU Time.................              0.12                 2,838.53
Elapsed Time.............             32.76               799,967.48
M Commands...............         12,413               303,102,961
GLO References...........          1,702                41,551,207
DIO References...........             81                 1,975,130
BIO References...........            131                 3,207,391
Page Faults..............              0                     1,666
Occurrences..............                                  24,419
```

Figure 3-17: Sample report output from the RUM Data for an Option report option—Option workload

Protocol Workload

The Protocol workload report output from the RUM Data for an Option report option lists the occurrence of the data element statistics for a specified protocol, as well as the total amounts within a given date range.

The following example shows the prompts and user responses for the RUM Data for an Option report option for the OR EVSEND PS protocol workload at a site:

```
Select RUM Reports Option: PDO <Enter>  RUM Data for an Option


                              RUM Data by Option/Protocol/RPC

     Select one of the following:

          1         Option
          2         Protocol
          3         RPC

Enter response: 2 <Enter>  Protocol

Select Protocol: OR EVSEND PS <Enter>       OE/RR => PHARMACY MESSAGE EVENT

Start with Date: 1/26/03// <Enter>  (JAN 26, 2003)
  End with Date: 2/11/03// <Enter>  (FEB 11, 2003)

Device: HOME// <Enter>  TELNET DEVICE

   ...compiling data...
```

Choose to report on the data element statistics for any of these three workload items.

Here we've chosen to report on the data element statistics for the OR EVSEND PS protocol at a site.

Here we entered the date range for the report.

Figure 3-18: Running the RUM Data for an Option report option—Protocol workload

The following is a sample report of the Protocol workload data element statistics for the OR EVSEND PS protocol at a site:

```
                    RUM Data for Option: OR EVSEND PS
                     N. FLORIDA/S. GEORGIA HCS (573)
                    For Jan 26, 2003 to Feb 11, 2003

                         per Occurrence                Totals

CPU Time.................          0.00                   644.00
Elapsed Time.............          0.01                 1,890.94
M Commands...............           326                52,374,584
GLO References...........            90                14,528,108
DIO References...........             0                    36,194
BIO References...........             0                         8
Page Faults..............             0                         0
Occurrences..............                                160,659
```

Figure 3-19: Sample report output from the RUM Data for an Option report option—Protocol workload

RPC Workload

The Remote Procedure Call (RPC) workload report output from the RUM Data for an Option report option lists the occurrence of the data element statistics for a specified RPC, as well as the total amounts within a given date range.

The following example shows the prompts and user responses for the RUM Data for an Option report option for the ORB DELETE ALERT RPC workload at a site:

```
Select RUM Reports Option: PDO <Enter>  RUM Data for an Option


                            RUM Data by Option/Protocol/RPC

     Select one of the following:

          1         Option
          2         Protocol
          3         RPC

Enter response: 3 <Enter>  RPC

Select RPC: ORB DELETE ALERT

Start with Date: 1/26/03// <Enter>  (JAN 26, 2003)
  End with Date: 2/11/03// <Enter>  (FEB 11, 2003)

Device: HOME// <Enter>  TELNET DEVICE

   ...compiling data...
```

Choose to report on the data element statistics for any of these three workload items.

Here we've chosen to report on the data element statistics for the ORB DELETE ALERT RPC at a site.

Here we entered the date range for the report.

Figure 3-20: Running the RUM Data for an Option report option—RPC workload

The following is a sample report of the RPC workload data element statistics for the ORB DELETE ALERT RPC at a site:

```
                    RUM Data for Option: ORB DELETE ALERT
                       N. FLORIDA/S. GEORGIA HCS (573)
                      For Jan 26, 2003 to Feb 11, 2003

                           per Occurrence                 Totals

CPU Time.................            0.01                   448.97
Elapsed Time.............            0.09                 6,167.11
M Commands...............             445               29,146,108
GLO References...........              73                4,809,557
DIO References...........               6                  401,818
BIO References...........               0                        6
Page Faults..............               0                        0
Occurrences..............                                   65,440
```

Figure 3-21: Sample report output from the RUM Data for an Option report option—RPC workload

Print Hourly Occurrence Distribution (Synonym: **PHO**)	**[KMPR PRINT HOURLY OCCURRENCE]**

The Print Hourly Occurrence Distribution report option [KMPR PRINT HOURLY OCCURRENCE] is new with the RUM V. 2.0 software. It lists the system workload hourly occurrence for any of the following:

- Option/Task
- Protocol
- Remote Procedure Call (RPC)

Option/Task Workload

The Option/Task workload report output from the Print Hourly Occurrence Distribution report option lists the hourly occurrence of the specified option or task by system node, as well as the total amounts and number of users for the given time period.

The following example shows the prompts and user responses for the Print Hourly Occurrence Distribution report option for the XMREAD option at a site:

```
Select RUM Reports Option: PHO <Enter>  Print Hourly Occurrence Distribution


                      Hourly Occurrence Distribution

     Select one of the following:

          1         Option/Task
          2         Protocol
          3         RPC

Enter response: 1 <Enter>  Option/Task

Select Option/Task: XMREAD <Enter>       Read/Manage Messages                run
routine     MAILMAN

Select DATE :  (5/11/2003 - 5/30/2003): T-1

Device: HOME// <Enter>  TELNET DEVICE

  Compiling data.....................................................................
.....................................................................................
```

Choose to report on any of these three workload items.

Here we've chosen to report on the XMREAD option at a site.

Here we entered the date for the report.

Figure 3-22: Running the Print Hourly Occurrence Distribution report option—Option/Task

The user can only pick a single date within the date range presented. The KMPRP2 routine determines the earliest and most recent dates in the RESOURCE USAGE MONITOR file (#8971.1) and displays it to the user.

The following is a sample report generated from the Option workload for the XMREAD option at a site:

```
                    N. FLORIDA/S. GEORGIA HCS (573)
                 Hourly Occurrence Distribution for XMREAD
                             For May 29, 2003

================================================================================
 Hour        A01      A02      A03      A04    Total    Total
                                               Occ      User
================================================================================
  00           2        3        1        6       12       10
  01           0        2        3        7       12       11
  02           3        1        4        6       14       13
  03           2        1        2        2        7        7
  04           0        4       10        1       15       11
  05           3        5        3        1       12       12
  06          12       24        8       21       65       48
  07          47       58       12       65      182      156
  08         131      146       47      165      489      358
  09          99      112       24      126      361      249
  10          70       94       23      110      297      211
  11         103      116       30       90      339      240
  12          85       83       18       58      244      170

Press RETURN to continue or '^' to exit: <Enter>


                    N. FLORIDA/S. GEORGIA HCS (573)
                 Hourly Occurrence Distribution for XMREAD
                             For May 29, 2003

================================================================================
 Hour        A01      A02      A03      A04    Total    Total
                                               Occ      User
================================================================================
  13         117      116       17       85      335      210
  14          95      103       27      119      344      240
  15          95      108       31      106      340      235
  16          54       73       16       93      236      172
  17          15       27        7       11       60       44
  18           4       60       16       12       92       35
  19           1       25        5        1       32       16
  20           3       14        1        5       23       16
  21           3        9        1        5       18       14
  22           3       12        5        2       22       17
  23           5        8        1        1       15       11

Press RETURN to continue:
```

Figure 3-23: Sample report output from the Print Hourly Occurrence Distribution report option—Option/Task workload

Package Resource Usage (Synonym: **PRU**)	**[KMPR PRINT NODE PERCENT]**

The Package Resource Usage report option [KMPR PRINT NODE PERCENT] lists the data element statistics for a specified VistA software application (package) namespace per system node within a given date range. The printout shows the system workload as a percent of the totals that the given software application namespace was running as either an option, protocol, Remote Procedure Call (RPC), or background task.

For more information on the system workload data elements, please refer to Table 3-1 in this chapter.

```
Select RUM Reports Option: pru <Enter>  Package Resource Usage

                          Package Resource Usage

  This option will display the Package Resource Usage Monitor statistics.
  The printout summarizes the statistics of the options, protocols and
  tasks for a selected namespace as percentages.


Select Software Namespace (case sensitive): ?

This response can be free text.

Select Package Namespace (case sensitive): LR

Start with Date: 11/8/98// <Enter>  (NOV 08, 1998)
  End with Date: 11/24/98// <Enter>  (NOV 24, 1998)

Device: HOME// <Enter>  Telnet

   ...compiling data...11/8/1998.....11/9/1998...........11/10/1998.........
                       11/11/1998.....11/12/1998...........11/13/1998.........
```

Here we entered the "LR" VistA software application (package) namespace.

Here we entered the date range for the report.

Figure 3-24: Running the Package Resource Usage report option

Sample generated report of the data element statistics for the LR namespaced VistA application at a site. The report is split across several pages and the data is listed by node:

```
                          Package Resource Usage
                              MEDICAL CENTER
                    Node 999A01 from Nov 08, 1998 to Nov 24, 1998
                                 'LR' Namespace

                      %          %          %          %          %       All Other
                   Options    Protocols     RPC        HL7      Tasks     Packages

CPU Time             0.0        0.0        0.0        0.0        0.0       100.0
Elapsed Time         0.0        0.0        0.0        0.0        0.0       100.0
M Commands           0.0        0.0        0.0        0.0        0.0       100.0
GLO References       0.0        0.0        0.0        0.0        0.0       100.0
DIO References       0.0        0.0        0.0        0.0        0.0       100.0
BIO References       0.0        0.0        0.0        0.0        0.0       100.0
Page Faults          0.0        0.0        0.0        0.0        0.0       100.0
Occurrences          0.0        0.0        0.0        0.0        0.0       100.0


                    Node 999A02 from Nov 08, 1998 to Nov 24, 1998
                                 'LR' Namespace

                      %          %          %          %          %       All Other
                   Options    Protocols     RPC        HL7      Tasks     Packages

CPU Time             0.0        1.7        0.0        0.0        6.2       92.2
Elapsed Time         0.0        0.1        0.0        0.0        5.1       94.8
M Commands           0.0        1.4        0.0        0.0        5.3       93.3
GLO References       0.0        2.3        0.0        0.0        7.9       89.8
DIO References       0.0        0.3        0.0        0.0        4.5       95.1
BIO References       0.0        0.0        0.0        0.0        7.6       92.4
Page Faults          0.0        0.3        0.0        0.0        2.0       97.7
Occurrences          0.0       16.3        0.0        0.0       11.9       71.8


                    Node 999A03 from Nov 08, 1998 to Nov 24, 1998
                                 'LR' Namespace

                      %          %          %          %          %       All Other
                   Options    Protocols     RPC        HL7      Tasks     Packages

CPU Time             0.0        1.2        0.0        0.0        8.2       90.6
Elapsed Time         0.0        0.0        0.0        0.0        4.1       95.8
M Commands           0.0        1.0        0.0        0.0        8.0       91.1
GLO References       0.0        1.5        0.0        0.0        9.8       88.7
DIO References       0.0        0.3        0.0        0.0        5.8       93.9
BIO References       0.0        0.0        0.0        0.0        7.3       92.7
Page Faults          0.0        0.1        0.0        0.0        1.4       98.5
Occurrences          0.0       13.0        0.0        0.0        9.4       77.6


                    Node 999A04 from Nov 08, 1998 to Nov 24, 1998
                                 'LR' Namespace

                      %          %          %          %          %       All Other
                   Options    Protocols     RPC        HL7      Tasks     Packages

CPU Time             2.2        5.5        0.0        0.0        0.0       92.3
Elapsed Time         3.7        2.7        0.0        0.0        0.0       93.6
```

M Commands	1.5	5.2	0.0	0.0	0.0	93.3
GLO References	1.6	4.9	0.0	0.0	0.0	93.5
DIO References	3.3	2.9	0.0	0.0	0.0	93.8
BIO References	1.8	0.8	0.0	0.0	0.0	97.4
Page Faults	0.7	0.1	0.0	0.0	0.0	99.1
Occurrences	0.7	8.0	0.0	0.0	0.0	91.4

Node 999A05 from Nov 08, 1998 to Nov 24, 1998
'LR' Namespace

	% Options	% Protocols	% RPC	% HL7	% Tasks	All Other Packages
CPU Time	2.5	2.7	0.0	0.0	0.0	94.8
Elapsed Time	2.5	1.1	0.0	0.0	0.0	96.4
M Commands	2.3	2.4	0.0	0.0	0.0	95.3
GLO References	2.2	2.4	0.0	0.0	0.0	95.4
DIO References	3.3	1.6	0.0	0.0	0.0	95.1
BIO References	1.3	0.3	0.0	0.0	0.0	98.4
Page Faults	0.5	0.0	0.0	0.0	0.0	99.4
Occurrences	0.4	4.6	0.0	0.0	0.0	95.0

Node 999A06 from Nov 08, 1998 to Nov 24, 1998
'LR' Namespace

	% Options	% Protocols	% RPC	% HL7	% Tasks	All Other Packages
CPU Time	2.6	6.4	0.0	0.0	0.0	91.0
Elapsed Time	4.2	3.0	0.0	0.0	0.0	92.8
M Commands	2.0	6.0	0.0	0.0	0.0	92.0
GLO References	2.0	5.7	0.0	0.0	0.0	92.2
DIO References	4.2	3.5	0.0	0.0	0.0	92.3
BIO References	2.0	0.9	0.0	0.0	0.0	97.1
Page Faults	1.1	0.2	0.0	0.0	0.0	98.8
Occurrences	0.8	9.2	0.0	0.0	0.0	89.9

Node 999A07 from Nov 08, 1998 to Nov 24, 1998
'LR' Namespace

	% Options	% Protocols	% RPC	% HL7	% Tasks	All Other Packages
CPU Time	1.6	3.6	0.0	0.0	0.0	94.8
Elapsed Time	3.1	1.7	0.0	0.0	0.0	95.2
M Commands	1.1	3.3	0.0	0.0	0.0	95.6
GLO References	1.1	3.0	0.0	0.0	0.0	95.9
DIO References	2.8	2.1	0.0	0.0	0.0	95.1
BIO References	1.6	0.5	0.0	0.0	0.0	97.8
Page Faults	1.0	0.1	0.0	0.0	0.0	98.9
Occurrences	0.5	5.8	0.0	0.0	0.0	93.7

Figure 3-25: Sample report output from the Package Resource Usage option

RUM Background Driver [KMPR BACKGROUND DRIVER]

On a nightly basis, the RUM Background Driver option [KMPR BACKGROUND DRIVER] moves the data within the ^KMPTMP("KMPR") collection global to the RESOURCE USAGE MONITOR file (#8971.1) and the temporary data within the ^KMPTMP("KMPR") global is purged.

Every Sunday night, the RUM Background Driver option [KMPR BACKGROUND DRIVER] monitors the RESOURCE USAGE MONITOR file to ensure that only a maximum of three weeks worth of data is maintained at the site.

Also, each Sunday night, the RUM Background Driver option automatically compresses the information contained within the RESOURCE USAGE MONITOR file (#8971.1) into weekly statistics. These weekly statistics are converted into an electronic mail message that is automatically transferred via network mail (i.e., VistA MailMan) and merged into a Capacity Planning National Database where this data is used for evaluation purposes. The site also receives a summary of the system workload data in the form of an electronic turn-around message.

For a sample of the electronic turn-around message, please refer to the "Software Management" topic in Chapter 2, "RUM Software Overview and Use," in this manual.

The RUM Background Driver option [KMPR BACKGROUND DRIVER] is *not* assigned to any menu. This option is scheduled through TaskMan to start the Resource Usage Monitor (RUM) software's background driver routine.

This option should be (re)scheduled with TaskMan's Schedule/Unschedule Options [XUTM SCHEDULE] located under the Taskman Management menu [XUTM MGR], see Figure 3-26.

The installation of the RUM software automatically sets the Background Driver job to run daily at 1:00 a.m. It does the same thing as TaskMan's Schedule/Unschedule Option, which saves the installer the job of having to set up the Background Driver job later.

This option lets you set the following information (see Figure 3-27 and Figure 3-28):

- **QUEUED TO RUN AT WHAT TIME—**This is the date/time you want this option to be started by TaskMan. It should be scheduled to run every day at 1 a.m.
- **DEVICE FOR QUEUED JOB OUTPUT—**Only enter a DEVICE if the job needs an output device.
- **QUEUED TO RUN ON VOLUME SET—**This is the Volume set [:node] upon which you want the job to run.
- **RESCHEDULING FREQUENCY—**This is the frequency at which you want the job to run. For the RUM Background Driver, this should be set to "1D" so that it will run every day. If this field is left blank, then the job will run only once.

Capacity Planning (CP) Services *strongly* recommends that the RUM Background Driver option [KMPR BACKGROUND DRIVER] be scheduled to run every day at 1 a.m., because this background driver is the main mechanism by which the ^KMPTMP("KMPR") temporary collection global is purged nightly and the RESOURCE USAGE MONITOR file (#8971.1) is trimmed (records deleted) to contain a maximum of 21 days of data every Sunday night.

Modification of the frequency and time may have adverse effects on the size of the ^KMPTMP("KMPR") temporary collection global and on the number of entries within the RESOURCE USAGE MONITOR file.

The following examples show typical displays when using TaskMan's Schedule/Unschedule Options option:

```
Select Systems Manager Menu Option: taskman Management


          Schedule/Unschedule Options
          One-time Option Queue
          Taskman Management Utilities ...
          List Tasks
          Dequeue Tasks
          Requeue Tasks
          Delete Tasks
          Print Options that are Scheduled to run
          Cleanup Task List
          Print Options Recommended for Queueing


Select Taskman Management Option: schedule/Unschedule Options

Select OPTION to schedule or reschedule: KMPR BACKGROUND DRIVER <RET>   RUM
Background Driver
         ...OK? Yes// <Enter> (Yes)
      (R)
```

At this point we are automatically placed into a ScreenMan form, see Figure 3-27.

Figure 3-26: Running TaskMan's Schedule/Unschedule Options option to set up the RUM Background Driver

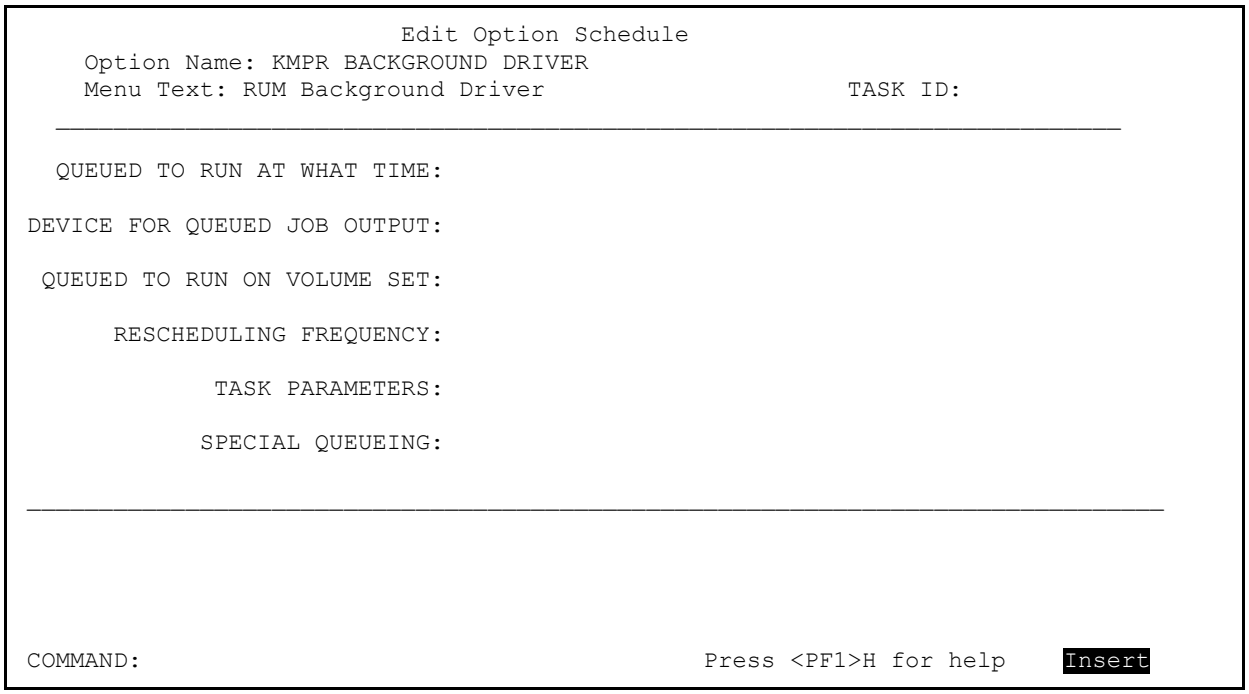

Figure 3-27: Sample ScreenMan form from TaskMan's Schedule/Unschedule Options option *before* scheduling the RUM Background Driver

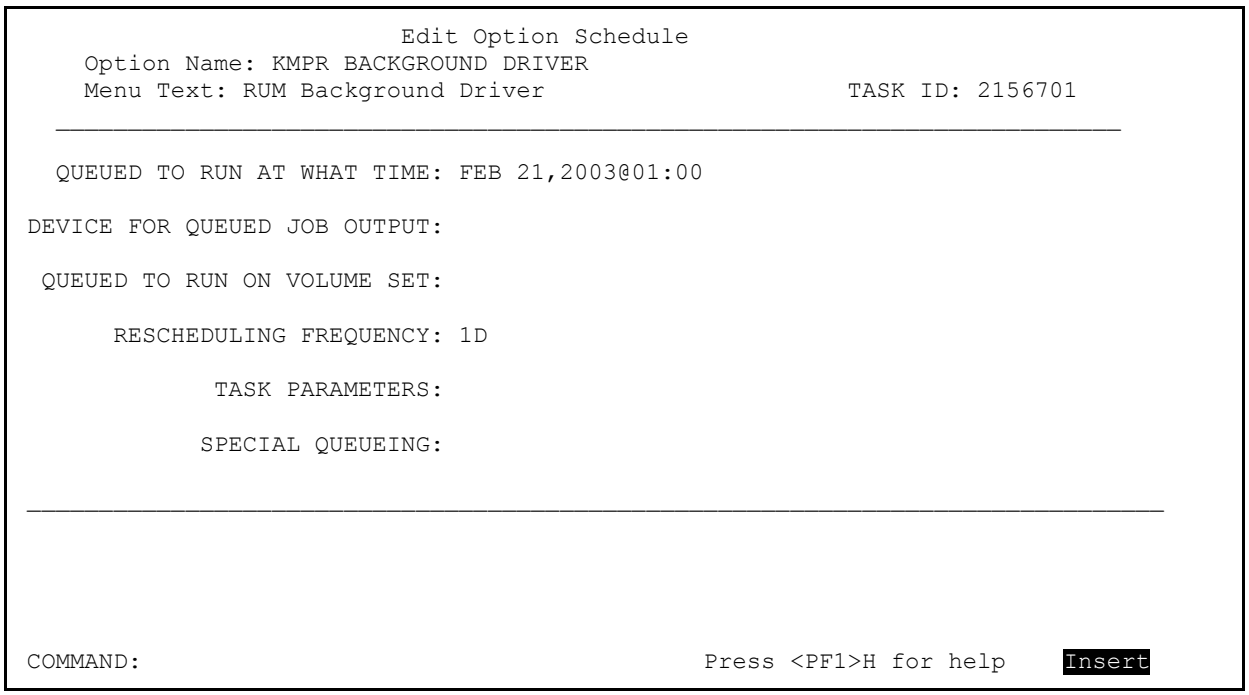

Figure 3-28: Sample ScreenMan form from TaskMan's Schedule/Unschedule Options option *after* scheduling the RUM Background Driver

Glossary

AAC	**A**ustin **A**utomation **C**enter.
ADPAC	**A**utomated **D**ata **P**rocessing **A**pplication **C**oordinator.
ANSI	**A**merican **N**ational **S**tandards **I**nstitute.
API	**A**pplication **P**rogramming **I**nterface.
APPLICATION	VistA software and documentation that supports the automation of a service (e.g., Laboratory or Pharmacy) within the Veterans Health Administration (VHA).
APPLICATION PROGRAM INTERFACE (API)	Program calls provided for use by application programmers. APIs allow programmers to carry out standard computing activities without needing to duplicate utilities in their own software. APIs also further DBA goals of system integration by channeling activities, such as adding new users, through a limited number of callable entry points.
ARRAY	An arrangement of elements in one or more dimensions. An M array is a set of nodes referenced by subscripts that share the same variable name.
BIO REFERENCE	Buffered I/O reference. A system workload data element that gives the number of times that a buffered access has been called because of M routine code execution. Terminals and printers are normally considered to be a buffered device within the M environment.
BULLETINS	Electronic mail messages that are automatically delivered by VistA MailMan under certain conditions. For example, a bulletin can be set up to "fire" when database changes occur, such as adding a new Institution in the INSTITUTION file (#4). Bulletins are fired by bulletin-type cross-references.
CALLABLE ENTRY POINT	Authorized program call that may be used in any VistA application software. The DBA maintains the list of DBIC-approved entry points.
CAPACITY PLANNING	The process of assessing a system's capacity and evaluating its efficiency relative to workload in an attempt to optimize system performance. (Formerly known as Capacity Management.)
CHUI	**CH**aracter-based **U**ser **I**nterface (i.e., roll-and-scroll).
CO	**C**entral **O**ffice.
CPU TIME	A system workload data element that gives the amount of time that the processor has spent executing M routine code.
CROSS REFERENCE	There are several types of cross-references available. Most generally, a VA FileMan cross-reference specifies that some action be performed when the field's value is entered, changed, or deleted. For several types of cross-references, the action consists of putting the value into a list; an index used when looking-up an entry or when sorting. The regular cross-reference is used for sorting and for lookup; you can limit it to sorting only.

DATA	A representation of facts, concepts, or instructions in a formalized manner for communication, interpretation, or processing by humans or by automatic means. The information you enter for the computer to store and retrieve. Characters that are stored in the computer system as the values of local or global variables. VA FileMan fields hold data values for file entries.
DATA DICTIONARY (DD)	The **D**ata **D**ictionary is a global containing a description of what kind of data is stored in the global corresponding to a particular file. VA FileMan uses the data internally for interpreting and processing files. A Data Dictionary contains the definitions of a file's elements (fields or data attributes); relationship to other files; and structure or design. Users generally review the definitions of a file's elements or data attributes; programmers review the definitions of a file's internal structure.
DATA ELEMENT	A statistical unit by which to measure either system or VistA option workload. Eight data elements have been defined: CPU time, elapsed time, M commands, GLO references, DIO references, BIO references, page faults, and number of occurrences.
DBA	**D**ata**b**ase **A**dministrator, oversees software development with respect to VistA Standards and Conventions (SAC) such as namespacing. Also, this term refers to the Database Administration function and staff.
DBIA	**D**ata**b**ase **I**ntegration **A**greement, a formal understanding between two or more VistA software applications that describes how data is shared or how software interacts. The DBA maintains a list of DBIAs.
DEFAULT	Response the computer considers the most probable answer to the prompt being given. It is identified by double slash marks (//) immediately following it. This allows you the option of accepting the default answer or entering your own answer. To accept the default you simply press the Enter (or Return) key. To change the default answer, type in your response.
DELIMITER	Special character used to separate a field, record, or string. VA FileMan uses the caret character ("^") as the delimiter within strings.
DHCP	**D**ecentralized **H**ospital **C**omputer **P**rogram now known as Veterans Health Information Systems and Technology Architecture (VistA).
DIO REFERENCE	**D**isk (**D**irect) **I**/**O** reference. A system workload data element that gives the number of times that a disk access has been requested because of M routine code execution.
DIRECT MODE UTILITY	A program call that is made when working in direct programmer mode. A direct mode utility is entered at the MUMPS prompt (e.g., >D ^XUP). Calls that are documented as direct mode utilities *cannot* be used in application software code.
DoD	**D**epartment **o**f **D**efense.
ELAPSED TIME	A system workload data element that gives the amount of actual time that has passed while executing M routine code.

ENCRYPTION	"Cryptographic transformation of data (plaintext) into a form (ciphertext) that conceals the data's original meaning to prevent it from being known or used."1
ENTRY	VA FileMan record. An internal entry number (IEN, the .001 field) uniquely identifies an entry in a file.
EXTRINSIC FUNCTION	Extrinsic function is an expression that accepts parameters as input and returns a value as output that can be directly assigned.
FACILITY	Geographic location at which VA business is performed.
FIELD	In a record, a specified area used for the value of a data attribute. The data specifications of each VA FileMan field are documented in the file's data dictionary. A field is similar to blanks on forms. It is preceded by words that tell you what information goes in that particular field. The blank, marked by the cursor on your terminal screen, is where you enter the information.
FILE	Set of related records treated as a unit. VA FileMan files maintain a count of the number of entries or records.
FILE MANAGER (VA FILEMAN)	VistA's Database Management System (DBMS). The central component of Kernel that defines the way standard VistA files are structured and manipulated.
FORM	Please refer to the Glossary entry for "ScreenMan Forms."
FORUM	The central E-mail system within VistA. Developers use FORUM to communicate at a national level about programming and other issues. FORUM is located at the OI Field Office - Washington, DC (162-2).
FREE TEXT	A DATA TYPE that can contain any printable characters.
GAL	**G**lobal **A**ddress **L**ist.
GLO REFERENCE	**Glo**bal reference. A system workload data element that gives the number of times that a global variable name has been called because of M routine code execution.
GLOBAL VARIABLE	Variable that is stored on disk (M usage).
GUI	**G**raphical **U**ser **I**nterface.
HEC	**H**ealth **E**ligibility **C**enter.
HEALTH LEVEL SEVEN (HL7)	National level standard for data exchange in all healthcare environments regardless of individual computer application systems.
HEALTH LEVEL SEVEN (HL7) VISTA	Messaging system developed as VistA software that follows the HL7 Standard for data exchange.
HIPAA	**H**ealth **I**nsurance **P**ortability and **A**ccountability **A**ct.
HSD&D	**H**ealth **S**ystems **D**esign and **D**evelopment.
INPUT TEMPLATE	A pre-defined list of fields that together comprise an editing session.

DEA Web site (http://www.deadiversion.usdoj.gov/ecomm/e_rx/con_ops/index.html): "Public Key Infrastructure Analysis Concept of Operations," Section 3.4.1 "Terms and Definitions"

INSTITUTION	A Department of Veterans Affairs (VA) facility assigned a number by headquarters, as defined by Directive 97-058. An entry in the INSTITUTION file (#4) that represents the Veterans Health Administration (VHA).
INTEGRATION AGREEMENTS (IA) (Formerly known as DATABASE INTEGRATION AGREEMENTS [DBIA])	**I**ntegration **A**greements (IA) define agreements between two or more VistA software applications to allow access to one development domain by another. Any software developed for use in the VistA environment is required to adhere to this standard; as such it applies to vendor products developed within the boundaries of DBA assigned development domains (e.g., MUMPS AudioFax). An IA defines the attributes and functions that specify access. All IAs are recorded in the Integration Agreement database on FORUM. Content can be viewed using the DBA menu or the Health Systems Design & Development's Web page.
INTERNAL ENTRY NUMBER (IEN)	The number used to identify an entry within a file. Every record has a unique internal entry number.
IRA	**I**nitial **R**equest **A**nalysis.
IRM	**I**nformation **R**esource **M**anagement. A service at VA medical centers responsible for computer management and system security.
ISO	**I**nformation **S**ecurity **O**fficer.
ISS	**I**nfrastructure and **S**ecurity **S**ervices.
ITAC	**I**nformation **T**echnology **A**pproval **C**ommittee was established as an advisory committee to the Chief Information Officer to ensure that the Information Technology (IT) program supports VHA goals and to provide guidance concerning priorities for IT initiatives.
IV&V	**I**ndependent **V**alidation and **V**erification Team acts to ensure the functional integrity and technical correctness of HSD&D software, processes, and documentation.
KERNEL	Kernel is VistA software that functions as an intermediary between the host operating system and other VistA software applications (e.g., Laboratory, Pharmacy, IFCAP, etc.). Kernel provides a standard and consistent user and program interface between software applications and the underlying M implementation.
LAN	**L**ocal **A**rea **N**etwork.
LDAP	**L**ightweight **D**irectory **A**ccess **P**rotocol.
LINK	Non-specific term referring to ways in which files may be related (via pointer links). Files have links into other files.
M COMMANDS	A system workload data element that gives the number of distinct commands that have been executed while executing M routine code.
MAILMAN	VistA software that provides a mechanism for handling electronic communication, whether it's user-oriented mail messages, automatic firing of bulletins, or initiation of server-handled data transmissions.

MENU	List of choices for computing activity. A menu is a type of option designed to identify a series of items (other options) for presentation to the user for selection. When displayed, menu-type options are preceded by the word "Select" and followed by the word "option" as in Select Menu Management option: (the menu's select prompt).
MENU SYSTEM	The overall Menu Manager logic as it functions within the Kernel framework.
MENU TEXT	The descriptive words that appear when a list of option choices is displayed. Specifically, the Menu Text field of the OPTION file (#19). For example, User's Toolbox is the menu text of the XUSERTOOLS option. The option's synonym is TBOX.
NAMESPACING	Convention for naming VistA software elements. The DBA assigns unique two to four character string prefix for software developers to use in naming routines, options, and other software elements so that software can coexist. The DBA also assigns a separate range of file numbers to each software application.
NUMBER OF OCCURRENCES	A system workload data element that gives a total measure of the number of VistA option executions.
NVS	**N**ational **V**istA **S**upport.
OIFO	**O**ffice of **I**nformation **F**ield **O**ffice.
OPTION	An entry in the OPTION file (#19). As an item on a menu, an option provides an opportunity for users to select it, thereby invoking the associated computing activity. Options may also be scheduled to run in the background, non-interactively, by TaskMan.
OPTION NAME	Name field in the OPTION file (e.g., XUMAINT for the option that has the menu text "Menu Management"). Options are namespaced according to VistA conventions monitored by the DBA.
PACKAGE	Please refer to the Glossary entry for "Software."
PAGE FAULTS	A system workload data element that gives the number of times that a job had to use non-physical (i.e., paged) memory.
POINTER	The address at which a data value is stored in computer memory. A relationship between two VA FileMan files, a pointer is a file entry that references another file (forward or backward). Pointers can be an efficient means for applications to access data by referring to the storage location at which the data exists.
PRIMARY KEY	A Data Base Management System construct, where one or more fields uniquely define a record (entry) in a file (table). The fields are required to be populated for every record on the file, and are unique, in combination, for every record on the file.

PRIVATE INTEGRATION AGREEMENT	Where only a single application is granted permission to use an attribute/function of another VistA software application. These IAs are granted for special cases, transitional problems between versions, and release coordination. A Private IA is also created by the requesting software application based on their examination of the custodian software application's features. An example would be where one software application distributes a patch from another software application to ensure smooth installation.
PROMPT	The computer interacts with the user by issuing questions called prompts, to which the user issues a response.
RECORD	Set of related data treated as a unit. An entry in a VA FileMan file constitutes a record. A collection of data items that refer to a specific entity (e.g., in a name-address-phone number file, each record would contain a collection of data relating to one person).
REQUIRED FIELD	A mandatory field, one that must not be left blank. The prompt for such a field will be repeated until the user enters a valid response.
REVERSE VIDEO	The reversal of light and dark in the display of selected characters on a video screen. For example, if text is normally displayed as black letters on a white background, reverse video presents the text as white letters on a black background or vice versa.
ROUTINE	Program or a sequence of instructions called by a program that may have some general or frequent use. M routines are groups of program lines, which are saved, loaded, and called as a single unit via a specific name.
RUM	**R**esource **U**sage **M**onitor. A fully automated support tool developed by the Capacity Planning (CP) Services, which entails the daily capture of system and VistA option workload information from participating sites.
SAC	**S**tandards **a**nd **C**onventions. Through a process of quality assurance, all VistA software is reviewed with respect to SAC guidelines as set forth by the Standards and Conventions Committee (SACC).
SACC	VistA's **S**tandards **a**nd **C**onventions **C**ommittee. This Committee is responsible for maintaining the SAC.
SCREEN EDITOR	VA FileMan's Screen-oriented text editor. It can be used to enter data into any WORD-PROCESSING field using full-screen editing instead of line-by-line editing.
SCREENMAN FORMS	Screen-oriented display of fields, for editing or simply for reading. VA FileMan's Screen Manager is used to create forms that are stored in the FORM file (#.403) and exported with a software application. Forms are composed of blocks (stored in the BLOCK file [#.404]) and can be regular, full screen pages or smaller, "pop-up" pages.
SCREEN-ORIENTED	A computer interface in which you see many lines of data at a time and in which you can move your cursor around the display screen using screen navigation commands. Compare to Scrolling Mode.
SCROLLING MODE	The presentation of the interactive dialog one line at a time. Compare to Screen-oriented.

SEPG	**S**oftware **E**ngineering **P**rocess **G**roup.
SOFTWARE	The set of programs, files, documentation, help prompts, and installation procedures required for a given software application (e.g., Laboratory, Pharmacy, and PIMS). A VistA software environment is composed of elements specified via the PACKAGE file (#9.4). Elements include files, associated templates, namespaced routines, and namespaced file entries from the OPTION, HELP FRAME, BULLETIN, and FUNCTION files. As public domain software, VistA software can be requested through the Freedom of Information Act (FOIA).
SUPPORTED REFERENCE INTEGRATION AGREEMENT	This applies where any VistA application may use the attributes/functions defined by the IA (these are also called "**Public** "). An example is an IA that describes a standard API such as DIE or VADPT. The software that creates/maintains the Supported Reference must ensure it is recorded as a Supported Reference in the IA database. There is no need for other VistA software applications to request an IA to use these references; they are open to all by default.
TEMPLATE	Means of storing report formats, data entry formats, and sorted entry sequences. A template is a permanent place to store selected fields for use at a later time. Edit sequences are stored in the INPUT TEMPLATE file (#.402), print specifications are stored in the PRINT TEMPLATE file (#.4), and search or sort specifications are stored in the SORT TEMPLATE file (#.401).
TOOLKIT	Toolkit (or Kernel Toolkit) is a robust set of tools developed to aid the VistA development community, and Information Resources Management (IRM), in writing, testing, and analysis of code. They are a set of generic tools that are used by developers, technical writers, software quality assurance (SQA) personnel, and software applications to support distinct tasks. Toolkit provides utilities for the management and definition of development projects. Many of these utilities have been used by the OI Field Office–Oakland for internal management and have proven valuable. Toolkit also includes tools provided by other OI Field Offices based on their proven utility.
TRIGGER	A type of VA FileMan cross-reference. Often used to update values in the database given certain conditions (as specified in the trigger logic). For example, whenever an entry is made in a file, a trigger could automatically enter the current date into another field holding the creation date.
TURN-AROUND MESSAGE	The mail message that is returned to the KMP-CAPMAN mail group detailing the system workload change over the previous reported session.
VA	The Department of **V**eterans **A**ffairs, formerly called the **V**eterans **A**dministration.

VA FILEMAN	Set of programs used to enter, maintain, access, and manipulate a database management system consisting of files. A software application of online computer routines written in the M language, which can be used as a standalone database system or as a set of application utilities. In either form, such routines can be used to define, enter, edit, and retrieve information from a set of computer stored files.
VAMC	**V**eterans **A**ffairs **M**edical **C**enter.
VARIABLE	Character, or group of characters, that refer(s) to a value. M (previously referred to as MUMPS) recognizes 3 types of variables: local variables, global variables, and special variables. Local variables exist in a partition of main memory and disappear at sign-off. A global variable is stored on disk, potentially available to any user. Global variables usually exist as parts of global arrays. The term "global" may refer either to a global variable or a global array. A special variable is defined by systems operations (e.g., $TEST).
VDSI	**V**istA **D**ata **S**ystems & **I**ntegration.
VHA	**V**eterans **H**ealth **A**dministration.
VISN	**V**eterans **I**ntegrated **S**ervice **N**etwork.
VISTA	**V**eterans Health **I**nformation **S**ystems and **T**echnology **A**rchitecture (VistA) of the Veterans Health Administration (VHA), Department of Veterans Affairs (VA). VistA software, developed by the VA, is used to support clinical and administrative functions at VHA sites nationwide. Server-side code is written in M, and, via Kernel, runs on all major M implementations regardless of vendor. VistA is composed of software that undergoes a quality assurance process to ensure conformity with namespacing and other VistA standards and conventions.
WAN	**W**ide **A**rea **N**etwork.

Index

A

Acknowledgements, ix
Adobe Acrobat Quick Guide Home Page Web Address, xiv
Adobe Home Page Web Address, xiii
Application Workload, 3-21
Assumptions About the Reader, xiii

B

Background Driver Option
  DAILY BACKGROUND LAST START Field, 3-3
  DAILY BACKGROUND LAST STOP Field, 3-3
  DAILY BACKGROUND TOTAL TIME Field, 3-3
  QUEUED BY Field, 3-3
  RESCHEDULING FREQUENCY Field, 3-2
  STATUS Field FREQUENCY, 3-2
  TASK ID Field, 3-2
  TEMPORARY COLLECTION GLOBAL Field, 3-3
  WEEKLY BACKGROUND LAST START Field, 3-3
  WEEKLY BACKGROUND LAST STOP Field, 3-3
  WEEKLY BACKGROUND TOTAL TIME Field, 3-3
Background Job, 3-24
  Scheduling Frequency, 3-25

C

Capacity Management
  Mail Group Edit Option, 2-3
  Menu, 2-2, 2-3, 3-1
Capacity Planning
  Home Page Web Address, xiii
  National Database, 1-1, 2-1, 2-2, 2-4, 3-24
  Projections Home Page Web Address, 2-2
  Statistics Home Page Web Address, 2-2
Collection Global
  KMPTMP("KMPR"), 2-1, 3-2, 3-3, 3-6, 3-24, 3-25
Contents, v

D

DAILY BACKGROUND LAST START Field, 3-3
DAILY BACKGROUND LAST STOP Field, 3-3
DAILY BACKGROUND TOTAL TIME Field, 3-3
Data Collection Process, 2-1
Databases
  Capacity Planning National Database, 1-1, 2-1, 2-2, 2-4, 3-24
Documentation
  Revisions, iii

E

Eve Menu, 2-2

F

Fields
  DAILY BACKGROUND LAST START, 3-3
  DAILY BACKGROUND LAST STOP, 3-3
  DAILY BACKGROUND TOTAL TIME, 3-3
  QUEUED BY, 3-3
  QUEUED TO RUN AT, 3-2
  QUEUED TO RUN AT WHAT TIME, 3-4
  RESCHEDULING FREQUENCY, 3-2
  RESCHEDULING FREQUENCY Field, 3-4
  RUM BACKGROUND DRIVER, 3-2
  STATUS, 3-2
  TASK ID, 3-2
  TEMPORARY COLLECTION GLOBAL, 3-3
  WEEKLY BACKGROUND LAST START, 3-3
  WEEKLY BACKGROUND LAST STOP, 3-3
  WEEKLY BACKGROUND TOTAL TIME, 3-3
Figures and Tables, vii
Files
  OPTION SCHEDULING (#19.2), 3-4
  RESOURCE USAGE MONITOR (#8971.1), 2-1, 2-2, 3-2, 3-6, 3-9, 3-20, 3-24, 3-25
Functional Description, 2-1

G

Globals
KMPTMP("KMPR") Collection Global, 2-1, 3-2, 3-3, 3-6, 3-24, 3-25
Glossary, 1
Graphs, Workload
All Nodes, 3-10
Single Node, 3-13

H

Help at Prompts, xii
Home Page
Adobe Acrobat Quick Guide Home Page Web Address, xiv
Adobe Home Page Web Address, xiii
Capacity Planning Home Page Web Address, xiii
Capacity Planning Projections Home Page Web Address, 2-2
Capacity Planning Statistics Home Page Web Address, 2-2
HSD&D VistA Documentation Library (VDL) Home Page Web Address, xiv
VHA OI HSD&D Home Page Web Address, xiii
How to
Obtain Technical Information Online, xii
Use this Manual, xi
HSD&D VistA Documentation Library (VDL) Home Page Web Address, xiv

I

Introduction, 1-1

K

KMP MAIL GROUP EDIT Option, 2-3
KMP-CAPMAN Mail Group, 2-3
KMPR BACKGROUND DRIVER Option, 2-1, 2-2, 3-2, 3-6, 3-24
Daily Last Start, 3-3
Daily Last Stop, 3-3
Daily Run Time, 3-3
Rescheduling Frequency, 3-2, 3-4, 3-6
Weekly Last Start, 3-3
Weekly Last Stop, 3-3
KMPR GRAPH ALL NODES Option, 3-10
KMPR GRAPH HOURLY SINGLE NODE Option, 3-13
KMPR PRINT HOURLY OCCURRENCE Option, 3-19
KMPR PRINT NODE PERCENT Option, 3-21
KMPR PRINT OPTION DATA Option, 3-15
KMPR REPORTS MENU, 3-9
KMPR RUM MANAGER MENU, 2-2, 3-1, 3-9
KMPR START COLLECTION Option, 3-6
KMPR STATUS COLLECTION Option, 3-2, 3-4, 3-6
KMPR STOP COLLECTION Option, 3-8
KMPTMP("KMPR") Collection Global, 2-1, 3-2, 3-3, 3-6, 3-24

M

M Commands Workload
All Nodes, 3-11
Single Node, 3-13
Mail Groups
KMP-CAPMAN, 2-3
Management of the RUM Software, 2-2
Menus
Capacity Management, 2-2, 2-3, 3-1
Eve, 2-2
KMPR REPORTS MENU, 3-9
KMPR RUM MANAGER MENU, 2-2, 3-1, 3-9
RUM Manager Menu, 2-2, 3-1, 3-9
RUM Reports, 3-9
Taskman Management, 3-6, 3-24
XTCM MAIN, 2-2, 2-3, 3-1
XUTM MGR, 3-6, 3-24

N

National Database
Capacity Planning, 1-1, 2-1, 2-2, 2-4, 3-24

O

Obtain Technical Information Online, How to, xii
Obtaining Data Dictionary Listings, xii
OPTION SCHEDULING File (#19.2), 3-4
Option Workload, 3-15
Option/Task Workload, 3-19
Options
Capacity Management Mail Group Edit, 2-3
Capacity Management Menu, 2-2, 2-3, 3-1
Eve Menu, 2-2
KMP MAIL GROUP EDIT, 2-3

KMPR BACKGROUND DRIVER, 2-1, 2-2, 3-2, 3-6, 3-24
Daily Last Start, 3-3
Daily Last Stop, 3-3
Daily Run Time, 3-3
Rescheduling Frequency, 3-2, 3-4, 3-6
Weekly Last Start, 3-3
Weekly Last Stop, 3-3
KMPR GRAPH ALL NODES, 3-10
KMPR GRAPH HOURLY SINGLE NODE, 3-13
KMPR PRINT HOURLY OCCURRENCE, 3-19
KMPR PRINT NODE PERCENT, 3-21
KMPR PRINT OPTION DATA, 3-15
KMPR REPORTS MENU, 3-9
KMPR RUM MANAGER MENU, 2-2, 3-1, 3-9
KMPR START COLLECTION, 3-6
KMPR STATUS COLLECTION, 3-2, 3-4, 3-6
KMPR STOP COLLECTION, 3-8
Package Resource Usage, 3-21
Print Hourly Occurrence Distribution, 3-19
Resource Usage Monitor (RUM), 3-1
RUM Background Driver, 2-1, 2-2, 3-24
Rescheduling Frequency, 3-4, 3-6
RUM Data by Date for Single Node (Graph), 3-13
RUM Data for All Nodes (Graph), 3-10
RUM Data for an Option, 3-15
RUM Manager Menu, 2-2, 3-1, 3-9
RUM Reports, 3-9
Schedule/Unschedule Options, 3-6, 3-24
Start RUM Collection, 3-6
Status of RUM Collection, 3-2, 3-4, 3-6
Stop RUM Collection, 3-8
Taskman Management, 3-6, 3-24
XTCM MAIN, 2-2, 2-3, 3-1
XUTM MGR, 3-6, 3-24
XUTM SCHEDULE, 3-6, 3-24
Orientation, xi
Overview
RUM Software, 2-1

P

Package Resource Usage Option, 3-21
Patches
Revisions, iii
Print Hourly Occurrence Distribution Option, 3-19
Projections and Statistics, 2-2
Protocol Workload, 3-15, 3-17, 3-19

Q

QUEUED BY Field, 3-3
QUEUED TO RUN AT Field, 3-2
QUEUED TO RUN AT WHAT TIME Field, 3-4

R

Reader, Assumptions About the, xiii
Reference Materials, xiii
Reports
Data for a Single Node, 3-13
Data for a Software, 3-21
Data for all nodes, 3-10
Data for an Option, 3-15
KMPR REPORTS MENU, 3-9
Print Hourly Occurrence Distribution, 3-19
RUM Reports Menu, 3-9
RESCHEDULING FREQUENCY Field, 3-2, 3-4
RESOURCE USAGE MONITOR File (#8971.1), 2-1, 2-2, 3-2, 3-6, 3-9, 3-19, 3-24, 3-25
Revision History, iii
Documentation, iii
Patches, iii
RPC Workload, 3-15, 3-18, 3-19
RUM
Functional Description, 2-1
Overview and Use of Software, 2-1
Shutdown Process, 3-8
Software Overview and Use, 2-1
Startup Process, 3-6
RUM BACKGROUND DRIVER Field, 3-2
RUM Background Driver Option, 2-1, 2-2, 3-24
Rescheduling Frequency, 3-4, 3-6
RUM Collection Routines
Current Status, 3-2
RUM Data by Date for Single Node (Graph) Option, 3-13
RUM Data for All Nodes (Graph) Option, 3-10
RUM Data for an Option, 3-15
RUM Manager Menu, 2-2, 3-1, 3-9
RUM Options, 3-1
RUM Reports Menu, 3-9
RUM Software

Management, 2-2

S

Schedule/Unschedule Options Option, 3-6, 3-24
Shutdown Process
  RUM, 3-8
Software
  Management, 2-2
  Overview and Use, 2-1
Start RUM Collection Option, 3-6
Startup Process
  RUM, 3-6
Statistics and Projections, 2-2
STATUS Field, 3-2
Status of RUM Collection Option, 3-2, 3-4, 3-6
Status of RUM Collection Routines, 3-2
Stop RUM Collection Option, 3-8
System Workload, 3-15, 3-19

T

Tables and Figures, vii
TASK ID Field, 3-2
Taskman Management Menu, 3-6, 3-24
TEMPORARY COLLECTION GLOBAL Field, 3-3

U

Use of the RUM Software, 2-1

V

VHA OI HSD&D Home Page Web Address, xiii

W

Web Page
  Adobe Acrobat Quick Guide Home Page Web Address, xiv
  Adobe Home Page Web Address, xiii
  Capacity Planning Home Page Web Address, xiii
  Capacity Planning Projections Home Page Web Address, 2-2
  Capacity Planning Statistics Home Page Web Address, 2-2
  HSD&D VistA Documentation Library (VDL) Home Page Web Address, xiv
  VHA OI HSD&D Home Page Web Address, xiii
WEEKLY BACKGROUND LAST START Field, 3-3
WEEKLY BACKGROUND LAST STOP Field, 3-3
WEEKLY BACKGROUND TOTAL TIME Field, 3-3
Workload
  All Nodes, 3-10
  Data, 3-24
  M Commands
    All Nodes, 3-11
    Single Node, 3-13
  Protocol, 3-15, 3-17, 3-19
  RPC, 3-15, 3-18, 3-19
  Single Node, 3-13
  System, 3-15, 3-19
  VistA Applications, 3-21
  VistA Options, 3-15
  VistA Options/Tasks, 3-19

X

XTCM MAIN Menu, 2-2, 2-3, 3-1
XUTM MGR Menu, 3-6, 3-24
XUTM SCHEDULE Option, 3-6, 3-24